

Water Stewardship Case Studies
South Africa

CÓRE

Case Study 8:
Boplaas 1743 Landgoed

Worldwide Fruit Limited are investing in Water Stewardship across their supply-base and will be presenting Water Stewardship case studies from supplying farms over the next 12 months. Their aim is to raise awareness of the challenges that South African growers deal with on a daily basis. Water management challenges and the solutions implemented to overcome them will be explored, but we will also see how growers are driving ongoing good management of water resources. Apart from water, case studies will also look at current sustainability strategies implemented and plans for improving sustainability into the future.



Case study 8: Boplaas 1743 Landgoed (Core fruit)

- Case study 7: Waterford Farm (TFFG)
- Case study 6: Morgenzon Farm (Rubisco)
- Case study 5: Cerasus Farming (Stems)
- Case study 4: Dreem Fruit (Delecta)
- Case study 3: De Keur
- Case study 2: Dennegeur Farms
- Case study 1: Boomerang Fruits

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Summary

Boplaas 1743 Landgoed was established in the Koue Bokkeveld in 1743 and is known as the oldest family business in South Africa. The van der Merwe family entered the fruit business on the original farm in the early 1900's. Around the 1940's, they started exporting Boplaas apples to the UK. Boplaas is now a fast-growing company, currently consisting of six farms and a packhouse. They mainly produce apples, pears, peaches, and citrus. Boplaas tries to keep up with best practice in water management by staying informed on new technologies and techniques. They switched from micro-irrigation to self-compensating drip irrigation, and water usage for the same 150 ha decreased from 9 000 to 6 500 cubic litres. They also aim to raise awareness among their workers and in the general public to be water-wise. At Marlenique Estate, a division of Boplaas 1743 Landgoed, a 594 kW power solar system (534 kWp ground mounted & 60 kWp floating solar) was installed. Now, Marlenique's energy intensive cold storage facility, packhouse, and irrigation systems all run on the solar system, reducing the farm's carbon footprint by more than 50%. For a number of years Boplaas 1743 Landgoed has been focussing on enhancing soil health, improving water management practices, greening their energy consumption, and investing in best labour practice. Their aim is to remain forward thinking, explore new products, new markets, and better ways of farming. Having that kind of approach will not only guarantee success, but also happiness.



View over Boplaas 1743 Landgoed, in the Koue Bokkeveld region. Photo: Boplaas 1743 Landgoed

History and Culture

Boplaas 1743 Landgoed was established by Izak Wilhelmus van der Merwe in 1743 and is known as the oldest family business in South Africa, and one of the oldest in Africa. Boplaas has stood the test of time with an unbroken lineage of ten generations of farmers on their beautiful, fertile land, with the eleventh generation enjoying their childhood on the farm. We had the privilege of meeting with Fanie van der Merwe, currently part of the ninth generation, and previous Managing Director of Boplaas Estate. Fanie recently handed over the reins to his four sons.

Boplaas 1743 Landgoed:

- Boplaas - from Afrikaans, “bo plaas” translates to “upper farm”. When the farm was established, it was the highest farm in the valley.
- 1743 - the year the farm was established.
- Landgoed - the Afrikaans word for Estate.

The Van der Merwe family entered the fruit business on the original farm in the early 1900's, which is situated in the heart of the Koue Bokkeveld, just past Ceres, near a small town called Op-die-Berg (translates to “On-the-Mountain”). They planted the first fruit trees in the Koue Bokkeveld – Bon Chretien trees. Over the years the Koue Bokkeveld established itself as prime apple country, however Boplaas still produces about 30% pears. Around the 1940's, Fanie's grandfather and his brother started their own export company under the brand name Koubokveld. They made their own crates, used a coach shed as packhouse, and supplied their own transport to the harbour to send Boplaas apples to the UK by boat. Boplaas Estate is now a fast-growing company, consisting of six farms (±500 hectares in total), a packhouse, and a solar plant of 600 kW power. They produce apples, pears, peaches, and citrus, and they also recently diversified with a cannabis farm.



Left: Three generations of Van der Merwes in front of Boplaas Homestead. Photo: Boplaas 1743 Landgoed. Right: Fanie van der Merwe holding proof of his grandfather's export company “Koubokveld”. Photo: Hortgro.co.za

Sustainable Water Management

The original Boplaas farm gets its water from a mountain, also called Table Mountain (like its big brother in Cape Town). A perennial stream runs down from the mountain to the orchards. All their produce on the 150-hectare farm is irrigated by this gravitational feed. Boplaas stores their winter runoff in dams, built to store two years of water needs. In 2004, and again around 2017/2018, they experienced severe droughts. Luckily, even in the driest years, the mountain stream delivered some water. Still, they had to implement major changes in their water management.



Top: Due to a severe drought that hit large parts of South Africa, including the Koue Bokkeveld, by April 2018 Boplaas dams were empty. Bottom: By October 2018 rains had fallen and the drought had ended. Photos: Boplaas 1743 Landgoed



Boplaas 1743 Landgoed mulches underneath their orchards to reduce evaporation of water and improve soil health. Photo: Carina Wessels

Boplaas switched from micro-irrigation to self-compensating drip irrigation in most of their orchards. Water usage for the same 150 ha decreased from 9 000 to 6 500 cubic litres. They try to keep up with best practice in water management. For Boplaas, that means to:

- not exceed your plantings more than the secured water you have.
- moving away from scheduled irrigation to what is needed by the tree. They now water on demand only.
- investigating new technologies and techniques, e.g. probes, weather data, pulse irrigation, hi tech drip irrigation, hi tech radio control irrigation, precision farming platforms, such as SupPlant (<https://supplant.me/> - currently trialling in citrus).
- experiment with water saving techniques, e.g. mulching, nets.
- change their mindsets to think in terms of a new measure of productivity – kilogram fruit per cubic meter of water used, rather than tons per hectare.
- secure their water by staying informed on licensing, government requirements, legislation etc.
- raise awareness among their workers and in the general public to be water-wise.



Harvested pears. Photo: Boplaas 1743 Landgoed

Marlenique Estate, a Division of Boplaas 1743 Landgoed

Marlenique Estate is a picturesque fruit farm near Franschoek in the Western Cape, and a division of Boplaas 1743 Landgoed. Fanie's second youngest son, Frans, is now the estate manager on Marlenique. Rather than splitting the original farm between the sons, Boplaas keeps growing and extending the business.




Marlenique Estate produces their own fruit and is also home to a stone fruit and citrus packhouse and cold storage facility. Marlenique Packhouse receives stone fruit and citrus in bulk bins and then manages the process of cooling, sorting, packing and shipping. The fruit is handled efficiently through the cold chain with the latest technology to boost productivity and the process is driven with over 90% renewable solar energy. In 2019 a complete new 4 lane Maf-Roda Camera Defect Sorting pack line were installed to keep trend with latest technology.

Marlenique's commitment to sustainable farming is impressive. They installed a 594 kWp solar system (534 kWp ground mounted & 60 kWp floating solar). Marlenique's energy intensive cold storage facility, packhouse, and irrigation systems all run on the solar system. The 1st phase of the solar project allows the farm to run 80–90% on renewable energy. The planned 2nd phase, which will include the installation of battery packs, will remove them from the grid completely. In total, both solar parks reduce their carbon footprint by more than 50%.



534 kW power ground mounted solar. Photo: Carina Wessels

The floating solar farm at Marlenique was the first commercially operated floating solar system on the African continent at commissioning. Floating solar provides more benefits than ground mounted systems. The floats the system is on are made from high-density polyethylene which is recyclable. Furthermore, the floats don't contaminate the water as they are UV and corrosion resistant and are guaranteed a 20+ year lifespan. By covering a significant surface area on a body of water, floating solar systems conserve water by reducing evaporation, while limiting algal growth via the shading from its panels. Moreover, the natural cooling effect provided by the water allows the panels to operate more efficiently than traditional ground mounted systems. The floating solar system also poses no risks to wildlife and surrounding habitats. It comes as no surprise then that the floating solar park at Marlenique has become a haven for animals in the dam, almost acting as a sort of artificial reef for fish that use it for cover, and for birds as a perching spot.

 Benefits of  floating solar 		
ENVIRONMENTAL Neutral or positive environmental impact. Minimises water evaporation & preserves existing ecosystems. Recyclable materials that decompose easily. Improves water quality & reduces algal bloom. Reduced wave action limits erosion.	ECONOMIC Converts unused space into profitable area. Reduces grid-connection costs due to existing electrical infrastructure. Enhanced electricity generation due to water's natural cooling effect. Smooth & fast development process. Swift & simple assembly.	SOCIAL Retains land & water for agriculture or other uses. Generates clean energy. Compatible with recreational activities. Environmental amenity, positive aesthetics.



60 kW power floating solar. Photo: Carina Wessels

With the installation of solar energy, Marlenique is addressing some of the key sustainability issues that we are facing in agriculture and the economy today - water and energy. The solar system reduces the farm’s reliance on the electricity grid, and provides a clean, affordable energy supply, thus significantly reducing the farm’s carbon footprint, while at the same time reducing evaporation and saving water. With a long-lasting lifespan, the benefits of the solar system will continue for many years to come, meaning that the business will also save money in the long run. Marlenique has created a business that is not only environmentally sustainable, but financially sustainable as well, and is a fantastic example for other businesses in the agricultural industry. Considering Africa’s need to become less reliant on coal, as well as its ample access to the sun’s energy, more projects such as this are feasible and within reach for other farms too.

See this video for more information on Marlenique Estate’s floating solar farm:
[South African farmers have built the first floating solar park in Africa](#)

Boplaas 1743 Landgoed's Future Ambitions

As far as Fanie is concerned, the next generation should decide which way they'd like to go. His role from now on will be to mentor the future generations. He feels fortunate that many of his goals for the growth and continuation of the company have been met.

According to Fanie, the advance of new technologies and the need to continuously stay up to date with contemporary means of doing traditional jobs, such as planting trees, is an area that could challenge future generations. An example of how things on Boplaas Estate evolved over time is the planting distances between rows and trees. Fanie remembers in his young days they were planting 6.1 x 6.1 meters apart. "You needed a 12-step ladder to get to those apples!". When Fanie started farming in the early 1980s, he was planting 5 x 3, and later 4 x 1.5, with poles and wires. His sons are now planting 3 x 1.25, and you can almost get to the top apples without a ladder. "Smaller trees, better apples - evolution..." says Fanie.

As far as sustainability is concerned, for a number of years now they have focused on improving soil health, better water management practices, greening their energy consumption, and investing in best labour practice (wages contribute to 60% of their direct farm expenses). Fanie wants to see the business build on that. Boplaas Estate will continue to look after their people and respect nature, but Fanie's wish is also that they remain forward thinking, explore new products, new markets, and better ways of farming. Having that kind of approach will not only guarantee success, but also happiness.



Harvesting of the various commodities produced at Boplaas. Photos: Boplaas 1743 Landgoed